



CITY OF FORT SMITH
INVITATION TO BID
Purchasing Department
623 Garrison Avenue #512
P.O. Box 1908
Fort Smith, AR 72902-1908

<u>Bid # 5625-531600-BA</u>	Ion Chromatograph HPLC (IC/HPLC)	<u>Closing Date:</u> October 15, 2019 @ 11:00 AM
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**ALL BIDS SUBMITTED SHAL HAVE AN ORIGINAL SIGNATURE. SEALED BIDS
MAY BE RETURNED TO THE ABOVE ADDRESS**

<i>Company</i>	Name: (Print or Type)
<i>Federal Tax I.D. No.</i>	Signature*
<i>Mailing Address</i>	Title
<i>City</i>	Date
<i>State</i> <i>Zip Code</i>	* <u>Authorized Signature:</u> The signer declares under penalty of perjury that she/he is authorized to sign this document and bind the company or organization to the terms of this agreement.
<i>Tel. No.</i> <i>Fax No.</i>	
<i>E-Mail</i>	

FOR CONSIDERATION AS A RESPONSIVE BID, THE FOLLOWING IS REQUIRED:

1. Bid must be submitted on official City bid forms (this bid document).
2. All information on this ITB cover page must be completed.
3. Bid must be submitted on or before the closing date and time. Bids received after the exact closing date and time will NOT be considered.

For Further Information Concerning This Bid, Please Contact:

Alie Bahsoon, Purchasing Manager
Phone: (479) 784-2267 Fax: (479) 784-2272
Email: purchasing@fortsmithar.gov

It is the intent of the City of Fort Smith, Arkansas to solicit competitive bids for **One (1) Ion Chromatograph HPLC (IC/HPLC)** as per the enclosed specifications which describe in sufficient detail an IC/HPLC that is suitable for use by the City of Fort Smith Environmental Quality Analytical Laboratory (“City.”) Any manufacturer’s name, trade name, brand name, or catalog number referenced within these specifications are for the purpose of describing and establishing a general quality levels. Such references are not intended to be restrictive but are to be considered minimum specifications. It is understood that no one company will be able to meet each and every specification and bidders are welcomed and encouraged to bid on this equipment. Any variation or exception to these minimum specifications must be explained in detail and in writing. Bids will be considered for any brand which meets or exceeds the quality of the specifications listed for any item and determined to be equal by the City. The IC/HPLC shall be bid **FOB Fort Smith, Arkansas**, and delivered to **3900 Kelley Highway, Fort Smith, Arkansas 72904**.

Detailed specifications of the IC/HPLC shall accompany the bid at the time of submittal. Any and all standard equipment, supplies, parts and/or attachments not specifically mentioned but necessary to furnish a complete unit shall be included by the successful bidder. Any manufacturer's name, trade name, brand name, or catalog number used in these specifications are for the purpose of describing and establishing general quality levels. Such references are not intended to be restrictive. Bids will be considered for any brand which meets or exceeds the quality of the specifications listed for any item and approved by the City of Fort Smith. **Any questions regarding the technical specifications of this bid document should be directed to Mr. Don Clover, Environmental Quality Program Manager at (479) 784-2337.**

MINIMUM SPECIFICATIONS

Overview	Specification	Does Not Meet	Meets	Exceeds	Comment
Overview	Must operate by the principle of high pressure liquid chromatography (HPLC), using suppressed conductivity. All lines and instrumentation that comes in contact with the sample <u>must be made of inert material except where it is not applicable.</u> System must be completely tolerant to solvents.				
Control	Dual system capability in a single system format for allowing two different applications to be run at the same time such as anion:cation, anion:amperometry, etc.				
	The unit must be capable of operating in a stand-alone or networked configuration and offer				

	the option to use vendor-supplied software on a PC computer to have remote access and control via a network.				
Design	The instrument should be of modular design enabling the instrument to be upgraded in the field with any other options as analytical requirements change.				
Configuration	The IC analyzer must be designed and configured for analysis of wastewater, drinking water, ground water, surface water, saline water, domestic, and industrial wastewater.				
Gas Requirements	System should not require any compressed gases such as helium, nitrogen, etc. to operate valves, pumps, etc.				

Pump Design	Specification	Does Not Meet	Meets	Exceeds	Comment
Construction	Chemically inert, metal-free PEEK pump heads and flow paths are compatible with all aqueous eluents of pH 0-14 and reverse phase solvents.				
Pump Type	Dual reciprocating pistons in series, microprocessor-controlled constant stroke, variable speed, very low pulse solvent delivery.				
Pump Flow Rate	0.001 to 20.0 mL/min adjustable in 1µL increments without the need to change pump heads.				
Pump Flow Rate Precision	Pumps must have a flow delivery precision of ± 0.1 % or better.				
Pump Flow Rate Accuracy	Pumps must have a flow delivery accuracy of ± 0.1 % or better.				
Pump Pressure Range	0 to 35.0 MPa (0 to 5000 PSI)				
Pump Pressure Pulsation	< 1 %				
Gradient Pump Profiles	Any combination of unlimited number of step, linear, convex, concave, and negative gradient profiles.				
Pump Capacity	Isocratic or gradient (to quaternary).				
Eluent Degasser	System must be supplied with an integrated eluent degassing				

	system that is resistant to solvents.				
Pump Priming	Pump must be self-priming.				
Leak Sensor	Pump must have a leak sensor that requires no calibration.				

Eluent Preparation System	Specification	Does Not Meet	Meets	Exceeds	Comment
Overview	An automated system for producing eluent and varying concentrations able to produce precise mixtures and excellent batch to batch reproducibility.				
Eluent Concentration Ranges	0.001 to 100mM				
Flow Rates	0.100 to 3.000 ml/min				
Eluent types	Multiple eluent types must be able to be made with the system and eluent stock solutions should be available from the vendor as well as a third party supplier. Solution must be able to be aqueous, buffered, or organic mobile phase eluents.				
	Carbonates, Bicarbonates, Hydroxides, MSA, Acids, Organics (List types of acids and hydroxides)				
Preparation	Eluent preparation device should not require any proprietary cartridges, or require extensive downtime to replace cartridges.				
	Eluent is prepared in an automated fashion from an eluent concentrate and ultra-pure water				
Gradient Profiles	Any combination of unlimited number of step, linear, convex, concave, and negative gradient profiles.				
pH Adjustment	Ability to pH adjust eluent for analysis. Built in mixing such as a magnetic stirrer is a must.				
Number of Eluent	The system must be able to make a minimum of two different eluents for gradient analysis.				
Software for Eluent System	Multiple levels of user security that allows for production and use as well as method set-up.				

Production Wizards	Ability to enter data and have the system produce the required eluent concentrations.				
Method	Ability to define and recall eluent preparation based on column, application, dilution, etc.				
	Eluent preparation device should be able to produce eluents automatically and routinely allowing for automatic shutdown of eluent generation system.				
Eluent Information Storage	Ability to store information about the stock eluent such as concentration, type, manufacturer, lot number, date used, date expires, etc.				
Audit Trail	Electric documentation of all action carried out by the user.				
Report	Information must be reportable and printed or saved as an *.xls, *.pdf, *.xml. Company logo must be able to be put on the report.				
GLP Compliance	Software must be GLP compliant.				
LIMS	Data must be compatible with LIMS systems.				

Column Thermostatic Control	Specification	Does Not Meet	Meets	Exceeds	Comment
Type	Electronic heating and cooling based on Peltier technology for two different columns.				
Column Heater	Capable of heating both the Eluent and Column				
Temperature Range	0.0 to 85.0°C in increments of 0.1°C				
Heating	Ambient Temperature +50°C				
Cooling	Ambient Temperature -20°C				
Room Monitoring	Capable of monitoring room temperature.				
Regulation	Capable of performing linear temperature regulation.				
Temperature Precision	± 0.1°C				
Temperature Accuracy	± 0.2°C				
Temperature Stability	< 0.05°C				

Heating Time	Less than 30 minutes from 20 to 50°C				
Cooling Time	Less than 40 minutes from 50 to 20°C				

Conductivity Detector	Specification	Does Not Meet	Meets	Exceeds	Comment
Type	Microprocessor controlled digital signal processing, autoranging, and intelligent detector with 6 reference chromatographs.				
Measuring Range	0 to 15,000 $\mu\text{S}/\text{cm}$				
Noise	< 0.1 nS at 1 $\mu\text{S}/\text{cm}$				
Baseline	< 0.2 nS at 23 $\mu\text{S}/\text{cm}$				
Linearity	< 0.1% for conductivity values greater than 16 $\mu\text{S}/\text{cm}$ < 1% for conductivity values between 1 and 16 $\mu\text{S}/\text{cm}$				
Sampling Rate	0 to 100 Hz, user settable or automatic				
Cell Volume	0.8 μL				
Cell Constant	Individual calibration data saved in detector.				
Electrode Construction	Electrode must be made from stainless steel.				
Cell Body Construction	Chemically inert material.				
Maximum Operating Pressure	10MPa (1450 PSI)				
Cell Temperature	20 to 60°C in 5°C increments. Must be user settable so working range is identical to settable range.				
Resolution	4.7 pS/cm				
Temperature Stability	< 0.001°C				
Temperature Compensation	Adjustable from 0 to 5% per °C State the default for the instrument quoted.				

Suppressor	Specification	Does Not Meet	Meets	Exceeds	Comment
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Construction	Chemically inert material resistant to solvents.				
Suppression	System must be supplied with suppressor for use with IC applications.				
Switching Duration	100 ms				
Back Ground Noise	< 0.2 nS/cm				
Maximum Operating Pressure	2.5 MPa (360 PSI), safety valve prevents damage from over pressurization				
Warranty	Suppressor must have 10 year warranty for parts and labor.				

Optional Amperometric Detector	Specification	Does Not Meet	Meets	Exceeds	Comment
Detection Modes	Must be able to run DC, Pulse, and Scan modes.				
Potential Range	-2.0 to 2.0 V in 0.001 V increments				
Autoranging	System must be able to automatically select proper range for samples.				
Electrodes	Gold				
	Glassy				
	Carbon				
	Platinum				
	Silver				
Reference Electrode	A pH Ag/AgCl combination electrode				
Temperature Control	Cell must be temperature controlled from 8°C above ambient to 45°C				
Temperature Stability	±0.1°C				
Methodology	Must come with electrodes and written method for performing cyanide analysis.				

Autosampler	Specification	Does Not Meet	Meets	Exceeds	Comment
Design	Autosampler must be of such design that metal does not come				

	into contact with the sample. Autosampler must have complete random access so priority samples can be added to any run without pausing the schedule or reorganizing sample racks.				
Inline filtration	Autosampler must have inline filtration so that samples require no prefiltration. Filtration unit must be designed so that the filter does not clog and does not require constant replacement or maintenance.				
Inline filtration	Should filter to particle size of 0.2 μm or less and be chemically inert and tolerant to most solvents.				
Sample Degassing	Autosampler must have built in sample degassing system.				
Sample Dilution	Autosampler must provide sample dilution.				
	Software reads sample and automatically dilutes and reanalyzes sample for required over range analyte.				
	Sample dilution should not require extra consumables for the dilution (i.e. sample vials, filters, etc.)				
	Dilution range of 1:1 to 1:1000				
Dilution Precision	< 1.0 % for a 1:100 dilution				
Inline Standard Dilution	Must be able to dilute and prepare calibration curve from a stock standard by using autodiluter system.				
Full Loop Injection	System must be able to perform full loop injections.				
Partial Loop Injection	System must be able to perform partial loop injections.				
Standard Tray Configuration	Tray should hold a minimum of 100, 10 mL vials and be customizable to use smaller vials if needed				

Instrument Control	Specification	Does Not Meet	Meets	Exceeds	Comment
Control Software Design	All instrument components are controlled by the same method program/software.				
Eluent Information Storage	Ability to store information about the stock eluent such as concentration, type, manufacturer, lot number, date used, date expires, etc.				
Wizards	Procedural/method Wizards must be standard with the software.				
Start-up and Shutdown	Must be able to start-up and shutdown system components by software including shutdown at end of unattended run.				
Power Failure Protection	System must shutdown and flag data in the event of a power failure.				
Audit Trails	Daily audit trail of changes made to equipment, calibrations, methods, etc.				
	Sample audit trail must be a standard feature.				
Calibration	Calibration data must be stored and user selectable.				
Application Templates	Application templates must be standard with the software. Vendor must provide a list of the templates with the bid submittal.				
GLP	Must be GLP compliant.				
Software Diagnostics	Software diagnostics shall be provided to enable the electronic error file to be interrogated locally or remotely via a modem link				

Computer	Specification	Does Not Meet	Meets	Exceeds	Comment
Processor	IBM compatible PC featuring an Intel Pentium 4 processor or higher				
	PC must feature a CPU of at least 2.4 GHz clock speed				
RAM	4 GB (or greater) RAM				
Hard Drive	500GB (or greater) hard drive				
CD-ROM Drive	16x (or greater) DVD-ROM/DVD +/- RW drive				
Network	An integrated 10/100/1000 Base-T LAN interface				
Monitor	22" flat screen monitor				

	Minimum Resolution 1024 X 768				
Printer	Hewlett-Packard LaserJet printer				
Cables	All cables and interfaces necessary for operation must be provided				
Operating System	Windows 7 Professional/Ultimate/Enterprise				
Remote Software	The data system shall include remote communications software for technical support and fault diagnosis				
Ports	3 RS-232 compliant ports				
	1 parallel port				
	9 USB 2.0 ports				
	Mouse port				
Floppy Drive	1.44 Mb 3.5" floppy drive				
Video Card	512 MB Video card				
Sound Card	24 bit Sound Card				

Software	Specification	Does Not Meet	Meets	Exceeds	Comment
Operating System	System must operate under Windows 7 Professional operating system.				
LIMS	Data system hardware and operating system software should enable the interfacing of the data system to any LIMS system.				
	The software must include a sample sequence generator for automatic download of a sample list from a LIMS system into a QA/QC sequence template to maximize instrument productivity.				
	Integration into the LIMS must be possible, to simplify the task of managing large amounts of data and to eliminate the necessity of redundant data entry and transcription errors.				
	Adherence to the requirements of Good Automated Laboratory Practices (GALP) necessitates that the data system must be able to be				

	integrated to a LIMS to maintain an electronic chain of custody for each sample from receipt through final report.				
	The instrument computer must be capable of bi-directional communication with the LIMS computer(s).				
	The instrument computer must be able to import sample and batch information directly from the LIMS, automatically build and execute a complete analytical sequence, correctly analyze the associated samples, and supply the results to the LIMS in an easily processed format.				
	Data entry and results output shall be in spreadsheet format enabling data reduction and report generation to be performed without recourse to third party software packages such as Microsoft Excel.				
Software	Software upgrades must be issued free of charge for the life of the equipment.				
Security	Software must be password protected.				
	User access rights adjustable.				
	Global GLP settings.				
	Digital Signature on two levels. Separate signature for methods and determinations.				
Audit Trail	Must have comprehensive audit trail for all components of the system and the software.				
Maintenance/Logs	Internal diagnostics including error checking and complete fault log.				
	Continuous run time clock that keeps track of instrument component usage hours to enable predictive maintenance.				
	The software should keep should track of all calibration replicates in a reference table. Rejection of 'fliers' should be allowed.				
	Full remote diagnostic software shall be included in				

	the standard software package to allow interrogation of the system by trained service personnel without the need for a site visit.				
	Expiry dates for eluents, solutions, standards, etc. should be kept and warnings displayed when expired reagents are going to be used.				
	GLP Test intervals should be in the software.				
Data Acquisition	Must have automatic and instantaneous updates for all dependent results when any change is made to a chromatograph's integration.				
Display	Real time viewing of the data during acquisition.				
Miscellaneous	Must have spectra library searching.				
	Must have automatic peak identification.				
	Must have automatic peak tracking via reference spectra.				
	Must have integrated database with ODBC connectivity.				
Documents/Templates	Export data as CSV, XML, SKL, AIA, TXT, and XLS.				
	Must be able to produce standard or customizable PDF reports.				
	Must have built in Wizards for setting up sequences, control programs, queries, and methods.				
	Report generator must have full spreadsheet functionality.				

Maintenance	Specification	Does Not Meet	Meets	Exceeds	Comment
Schedule	Vendor must supply a written schedule of items to be maintained by the Laboratory Personnel.				
Documentation	Vendor must supply a written schedule of items to be maintained by the Laboratory Personnel.				
Maintenance Agreement	Maintenance agreements must be able to be purchased from the vendor.				

	Maintenance agreement must include travel, labor and all replacement parts.				
	Maintenance agreement must include remote trouble shooting and support.				
	Maintenance agreement should include an annual preventative maintenance visit which includes: Labor & Travel; Wearable Parts Replacement; Firmware Updates; Software Updates.				
Maintenance Response Time	List location of nearest service engineer and typical response time to our location.				
Training	Vendor must supply maintenance training for Laboratory Personnel at the time of installation.				

Safety	Specification	Does Not Meet	Meets	Exceeds	Comment
UL Standards	Must be certified to meet UL standard.				

Performance Specifications	Specification	Does Not Meet	Meets	Exceeds	Comment
EPA 300.1 A & B	Method must be supplied with the instrument or set-up at time of installation.				
	Six point linear calibration curve must be obtained with a correlation coefficient of 0.995 or better for all analytes of interest.				
	Bromate shall be calibrated from 0.5 µg/L to 20 µg/L.				
	Maximum Loop size is 50 µL.				
	Chloride must not overlap the bromate peak.				
	List sample analysis time for 300.1 A, 300.1 B, and 300.1 A&B simultaneous analysis.				
Detection Limits for 300.1 A & B	Fluoride = 0.009 mg/L				
	Chlorite = 0.0005 mg/L				
	Bromate = 0.0005 mg/L				
	Chloride = 0.004 mg/L				

	Nitrite as N = 0.001 mg/L				
	Bromide = 0.014 mg/L				
	Nitrate as N = 0.008 mg/L				
	Phosphate as P = 0.019 mg/L				
	Sulfate = 0.019 mg/L				
	Chlorate = 0.001 mg/L				
EPA 314.0 & 314.1	Method must be supplied with the instrument or set-up at time of installation.				
	Six point linear calibration curve must be obtained with a correlation coefficient of 0.995 or better for all analytes of interest.				
	Must be able to achieve MRL 0.5 µg/L with primary and confirmation columns				
Cyanide by Amperometry	List detection limits for cyanide for the proposed supplied method.				

Customer Support Policies	Specification	Does Not Meet	Meets	Exceeds	Comment
Quality	The vendor must provide proof of conformance to ISO9001 standards. A certificate or statement must be provided to prove this. Compliance to ISO9002 alone is not satisfactory, as this does not cover product development functions.				
Warranty	Full 3 year warranty must be provided, must include parts and labor costs. Warranty <u>will not</u> start until the day after the instrument is installed.				
Training	The vendor must provide training. The training must include general maintenance, instrument operation, and software utilization. Specify the number of classes offered, the city in which the classes are offered, and the cost of each class.				
	Half day refresher training or for new software updates must be supplied annually for a minimum of 10 years. The cost of this				

	training and location must be specified in the bid quote.				
Spare Parts Support Period	The vendor will provide 10 years support for spare parts from the date of last unit manufacture of the model of the instrument. After this time, parts and supplies will still be provided if available.				
Service Contract	The vendor must provide the availability to purchase a service contract. Specify the price per year of the contract, and what the contract covers (i.e. Labor, Travel, Parts, etc.).				
Software Upgrade Policy	Software upgrades must be issued free of charge for the life of the equipment.				
Application Support	Application support must be supplied for the instrument by the vendor. Include the cost for support on an annual basis.				
Technical Support	Technical phone and e-mail support must be supplied for the instrument by the vendor. Include the cost for support on an annual basis.				
Instrument Return	Within thirty (30) days after the installation of the instrument, the instrument may be returned to the vendor at the vendors cost and the City of Fort Smith will not be invoiced for any charges related to the instrument. This thirty (30) day period will be used as an evaluation period for the instrument to ensure the capabilities of the instrument were correctly stated by the vendor.				

PROPOSAL FORM

Ion Chromatograph HPLC (IC/HPLC) \$ _____

Optional Amperometric Detector \$ _____

Maintenance Contract per Year \$ _____

Off Site Training Cost per Attendee \$ _____

Anticipated time of delivery: _____ Days

From: _____

Vendor Name

Authorized Signature: _____

Printed Name: _____

Title: _____

Date: _____